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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,349

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William Frederick Dew JR.

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EXAMINER

SAVAGE, MATTHEW O

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,349	Applicant(s) DEW, WILLIAM FREDERICK	
	Examiner Matthew O. Savage	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46, 48-52 and 55-63 is/are pending in the application.
- 4a) Of the above claim(s) 58-60 and 63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46, 48-52, 55-57, 61, and 62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations recited in claim 56 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 46, 48-52, 55-57, 61, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al in view of Wen et al.

With respect to claim 46, Masuda et al disclose a high rate filtration apparatus for removing suspended solids from liquids including a filter housing (see FIG. 1) having an axial flow direction therethrough for liquid, a first perforated panel 4 secured in the housing transverse to the flow direction, a second perforated panel 2 secured in the housing transverse to the flow direction and spaced from the first perforated panel, an influent liquid conduit located 26 adjacent the first panel 4, the influent conduit connected to a source of liquid having suspended solids therein, an effluent liquid conduit 47 located adjacent the second panel 2 thereby establishing the axial flow direction through said housing from said influent conduit to said effluent conduit; f) substantially spherical and compressible filtration media of individual, fibrous lumps of bundled, crimped fibers located between the first and second panels; and g) a piston 34 for moving the first perforated panel toward and away from the second fixed panel to define: i) a fixed filter bed of media compressed between the panels during filtration; and ii) a cleaning chamber between the panels during washing wherein the first panel is moved away from the second panel to provide the media in an uncompressed condition for washing in axial flow direction. Masuda et al fail to specify the first perforated panel 4 adjacent the influent conduit as being fixedly secured in the housing and the second perforated panel 2 adjacent the effluent conduit as being movably secured in the housing, however, Wen et al disclose such an arrangement. Wen et al suggests that

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such an arrangement reduces the length of the control rod 21 for move the second panel 18. It would have been obvious to have modified the apparatus of Musuda et al so as to have included a first fixed panel adjacent the influent conduit and a second movable panel adjacent the effluent conduit as suggested by Wen et al in order to reduce the length of the control rod required to move the second panel. Wen et al fail to specify a porosity gradient across the bed proceeding progressively from more porous to less porous in the axial flow direction, however, such an arrangement is considered inherent in the arrangement disclosed by Wen et al since Wen et al compress the filter media in the same way as disclosed in the instant application.

Regarding claim 48, Masuda et al disclose the effluent liquid conduit as including a filtered liquid effluent conduit 47 and a separate wash water effluent conduit 48 (see FIG. 1).

As to claim 49, Masuda et al disclose a distribution plenum 7 located between the liquid influent conduit and the fixed first perforated panel capable of distributing liquid evenly through the first panel and into the filter bed (see FIG. 1).

Regarding claim 50, Wen et al disclose the axial flow direction as being upflow, the fixed first panel 13 being located below the movable second panel 18, the influent liquid conduit is located below the fixed first panel, and the effluent liquid conduit being located above the movable second panel (see FIG. 1).

Concerning claim 51, Masuda et al disclose a gas injection conduit 10 located adjacent the first panel 4 for supplying air to mechanically shear trapped solids from the media in the cleaning chamber (see FIG. 1).

As to claim 52, Masuda et al fail to specify the gas injection conduit as including two air conduits whereby air injection is alternated between said two conduits to increase the mechanical effect of shearing trapped solids from the media, however, providing an additional air conduit 10 would have been obvious in order to multiply the media cleaning effect of the media cleaning portion of the apparatus (see St. Regis Paper Co. V. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977)).

Regarding claim 55, Masuda et al disclose the collector size, effective pore size, and depth of said filter bed are adjustable by movement of said second panel as filtration proceeds.

Regarding claim 56, Masuda et al discloses multiple cells of filter housings each having independently operable influent and effluent conduits wherein one or more cells can be defined as cleaning chambers independently of other cells defined as filter beds since valves 24 and 46 are provided (see FIGS. 3 and 4).

With respect to claim 57, Masuda et al disclose an up-flow high rate filtration apparatus for removing suspended solids from waste water, the apparatus including a) a vertically oriented filter housing (see FIG. 1) having a waste water influent conduit located 26 in a lower portion thereof and separate filtered water 47 and wash water effluent conduits 48 located in an upper portion thereof, the conduits establishing an upward axial flow direction through the housing; b) a first perforated panel 4 secured in the housing above the influent waste water conduit and transverse to the axial flow direction; c) a second perforated panel 2 secured in the housing transverse to the axial flow direction, above the first panel and spaced therefrom, and below the filtered water

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and wash water effluent conduits d) a distribution plenum 7 located between the influent waste water conduit and the fixed first perforated panel, whereby waste water is evenly distributed through the first panel in the axial flow direction; e) substantially spherical and compressible filtration media of individual, fibrous lumps of bundled, crimped fibers 6 located between the first and second panels; g) a piston 34 for moving the first perforated panel toward and away from the fixed second panel to define: i) a fixed filter bed of media compressed between the panels, collector size, effective pore size, and and depth of said filter bed are adjustable by movement of first second panel as filtration proceeds, and whereby head loss can be adjusted and filtration efficiency maintained during filtration by mechanically expanding the fixed bed; and ii) a cleaning chamber between the panels during washing wherein the second panel is moved away from the first panel to provide the media in an uncompressed condition for washing (see FIG. 13); and h) an air conduit 10. Masuda et al fail to specify the first perforated panel 4 adjacent the influent conduit as being fixedly secured in the housing and the second perforated panel 2 adjacent the effluent conduit as being movably secured in the housing, however, Wen et al disclose such an arrangement. Wen et al suggests that such an arrangement reduces the length of the control rod 21 required to move the second panel 18. It would have been obvious to have modified the apparatus of Musuda et al so as to have included a first fixed panel adjacent the influent conduit and a second movable panel adjacent the effluent conduit as suggested by Wen et al in order to reduce the length of the control rod required to move the second panel. Wen et al fail to specify a porosity gradient across the bed proceeding progressively from more porous

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to less porous in the axial flow direction, however, such an arrangement is considered inherent in the arrangement disclosed by Wen et al since Wen et al compress the filter media in the same way as disclosed in the instant application. Masuda et al fail to specify the gas injection conduit as including two air conduits whereby air injection is alternated between said two conduits to increase the mechanical effect of shearing trapped solids from the media, however, providing an additional air conduit 10 would have been obvious in order to multiply the media cleaning effect of the media cleaning portion of the apparatus (see St. Regis Paper Co. V. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977)).

As to claims 61 and 62, Masuda et al disclose the influent conduit 26 as being connected to the cleaning chamber and supplying liquid waste water having suspended solids therein for washing (e.g., see from line 63 of col. 5 to line 8 of col. 6 and FIG. 13).

The declaration under 37 CFR 1.132 filed 8-3-07 is sufficient to overcome the rejection of claims 46, 48-52, 55-57, 61, and 62 based upon Caliskaner et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew O. Savage
Matthew O Savage
Primary Examiner
Art Unit 1724

mos